

audio signal representing the tactile event) then signal processing can be employed to separate/filter the pseudo-audio signal. For example in some embodiments the tactile output determiner can be configured to filter out the frequencies where tactile feedback is strongest. In some embodiments the tactile output determiner can be configured to employ noise cancellation or comparable to tune the pseudo-audio signal representing the haptic feedback away.

[0224] It shall be appreciated that the term user equipment is intended to cover any suitable type of wireless user equipment, such as mobile telephones, portable data processing devices or portable web browsers. Furthermore, it will be understood that the term acoustic sound channels is intended to cover sound outlets, channels and cavities, and that such sound channels may be formed integrally with the transducer, or as part of the mechanical integration of the transducer with the device.

[0225] In general, the design of various embodiments of the invention may be implemented in hardware or special purpose circuits, software, logic or any combination thereof. For example, some aspects may be implemented in hardware, while other aspects may be implemented in firmware or software which may be executed by a controller, microprocessor or other computing device, although the invention is not limited thereto. While various aspects of the invention may be illustrated and described as block diagrams, flow charts, or using some other pictorial representation, it is well understood that these blocks, apparatus, systems, techniques or methods described herein may be implemented in, as non-limiting examples, hardware, software, firmware, special purpose circuits or logic, general purpose hardware or controller or other computing devices, or some combination thereof.

[0226] The design of embodiments of this invention may be implemented by computer software executable by a data processor of the mobile device, such as in the processor entity, or by hardware, or by a combination of software and hardware. Further in this regard it should be noted that any blocks of the logic flow as in the Figures may represent program steps, or interconnected logic circuits, blocks and functions, or a combination of program steps and logic circuits, blocks and functions. The software may be stored on such physical media as memory chips, or memory blocks implemented within the processor, magnetic media such as hard disk or floppy disks, and optical media such as for example DVD and the data variants thereof, CD.

[0227] The memory used in the design of embodiments of the application may be of any type suitable to the local technical environment and may be implemented using any suitable data storage technology, such as semiconductor-based memory devices, magnetic memory devices and systems, optical memory devices and systems, fixed memory and removable memory. The data processors may be of any type suitable to the local technical environment, and may include one or more of general purpose computers, special purpose computers, microprocessors, digital signal processors (DSPs), application specific integrated circuits (ASIC), gate level circuits and processors based on multi-core processor architecture, as non-limiting examples.

[0228] Embodiments of the inventions may be designed by various components such as integrated circuit modules.

[0229] As used in this application, the term 'circuitry' refers to all of the following:

[0230] (a) hardware-only circuit implementations (such as implementations in only analog and/or digital circuitry) and

[0231] (b) to combinations of circuits and software (and/or firmware), such as: (i) to a combination of processor

(s) or (ii) to portions of processor(s)/software (including digital signal processor(s)), software, and memory(ies) that work together to cause an apparatus, such as a mobile phone or server, to perform various functions and

[0232] (c) to circuits, such as a microprocessor(s) or a portion of a microprocessor(s), that require software or firmware for operation, even if the software or firmware is not physically present.

[0233] This definition of 'circuitry' applies to all uses of this term in this application, including any claims. As a further example, as used in this application, the term 'circuitry' would also cover an implementation of merely a processor (or multiple processors) or portion of a processor and its (or their) accompanying software and/or firmware. The term 'circuitry' would also cover, for example and if applicable to the particular claim element, a baseband integrated circuit or applications processor integrated circuit for a mobile phone or similar integrated circuit in server, a cellular network device, or other network device.

[0234] The foregoing description has provided by way of exemplary and non-limiting examples a full and informative description of the exemplary embodiment of this invention. However, various modifications and adaptations may become apparent to those skilled in the relevant arts in view of the foregoing description, when read in conjunction with the accompanying drawings and the appended claims.

[0235] However, all such and similar modifications of the teachings of this invention will still fall within the scope of this invention as defined in the appended claims.

1-49. (canceled)

50. A method for a communications system comprising: determining an input characteristic; generating a signal dependent on the input characteristic; providing the signal to one or more separate apparatus; and wherein the signal is configured to generate a tactile output.

51. The method as claimed in claim 50, wherein determining the input characteristic comprises:

determining a touch input; determining a characteristic of the touch input; and generating a signal dependent on the characteristic.

52. The method as claimed in claim 51, wherein determining the characteristic of the touch input comprises at least one of:

determining a force/pressure of the touch input; determining a displacement of the touch input in a first direction relative to one edge of the touch input apparatus; determining a displacement of the touch input in a second direction substantially orthogonal to the first direction; determining a speed of the touch input; determining a co-ordinate of the touch input; determining a number of points of contact of the touch input; and determining a gesture from the touch input.

53. The method as claimed in claim 52, wherein when determining the characteristic of the touch input comprises determining the gesture from the touch input, determining the gesture further comprises determining at least one of:

determining a swipe gesture; determining a pinch zoom gesture; determining a shape gesture; and determining a circular/arc gesture.

54. The method as claimed in claim 50, wherein generating the signal dependent on the input characteristic comprises at least one of: